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DATE: 07/02/2001

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PATENT APPLICATION: US/09/722,602 TIME: 16:46:00 Input Set : A:\Seqlist.txt Output Set: N:\CRF3\07022001\I722602.raw 4 <110> APPLICANT: ARNOLD, Frances H. PETROUNIA, Ionna P. 6 SUN, Lianhong 8 <120> TITLE OF INVENTION: DIRECTED EVOLUTION OF OXIDASE ENZYMES 11 <130> FILE REFERENCE: 9373/1G811US1 13 <140> CURRENT APPLICATION NUMBER: US 09/722,602 14 <141> CURRENT FILING DATE: 2000-11-27 ENTERED 16 <150> PRIOR APPLICATION NUMBER: US 09/571,553 17 <151> PRIOR FILING DATE: 2000-05-16 19 <160> NUMBER OF SEQ ID NOS: 36 21 <170> SOFTWARE: FastSEQ for Windows Version 3.0 23 <210> SEQ ID NO: 1 24 <211> LENGTH: 36 25 <212> TYPE: DNA 26 <213> ORGANISM: Artificial Sequence 28 <220> FEATURE: 29 <223> OTHER INFORMATION: Primer 31 <400> SEQUENCE: 1 32 aattcgaage ttatggeete ageaeetate ggaage 36 34 <210> SEQ ID NO: 2 35 <211> LENGTH: 33 36 <212> TYPE: DNA 37 <213> ORGANISM: Artificial Sequence 39 <220> FEATURE: 40 <223> OTHER INFORMATION: Primer 42 <400> SEQUENCE: 2 43 cttccttcta gattactgag taacgcgaat cgt 33 45 <210> SEQ ID NO: 3 46 <211> LENGTH: 30 47 <212> TYPE: DNA 48 <213> ORGANISM: Artificial Sequence 50 <220> FEATURE: 51 <223> OTHER INFORMATION: Primer 53 <400> SEQUENCE: 3 54 ggaagagaat tcaatacgca aaccgcctct 30 56 <210> SEQ ID NO: 4 57 <211> LENGTH: 32 58 <212> TYPE: DNA 59 <213> ORGANISM: Artificial Sequence 61 <220> FEATURE: 62 <223> OTHER INFORMATION: Primer 64 <400> SEQUENCE: 4 65 ggtcataagc ttttcctgtg tgaaattgtt at 32 67 <210> SEQ ID NO: 5 68 <211> LENGTH: 30 69 <212> TYPE: DNA

RAW SEQUENCE LISTING

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RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/722,602

DATE: 07/02/2001 TIME: 16:46:00

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Output Set: N:\CRF3\07022001\I722602.raw

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20 25 30													
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139			1	,	85			- 1 -		90		1	1		95	1
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$\frac{146}{117}$		Phe	GIn	Ala	Ser		Tyr	Thr	Ala	Pro		Pro	GIY	Leu	GLY	_
147	145	01	Desa	m la sa	т1.	150	T 0	D	T1.	171	155	1 1 5	7] a	۸۱۸	ת 1 ת	160
$\frac{148}{149}$	ттр	GTÀ	Pro	THE	11e	Asp	Leu	Pro	rre	170	PIO	Ald	Ala	Ald	175	шe
150	Glu	Dro	Thr	Sar		Ara	Val	Lau	Mot		Sor	Sor	Trans	Δra		Δen
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163	Com	m	275	C1	<i>c</i> 1	17.5.1	Dha	280	T	7	C1	C1	285	m	Con	Dwo
164 165	sei	290	ser	СТУ	СТУ	Val	Phe 295	Glu	ьуѕ	ASII	GIY	300	vaı	тут	ser	PIO
166	Sar		Luc	Thr	Trn	Thr	Ser	Lou	Dro	λen	λla		Val	λen	Dro	Mot
167	305	Det	цуз	1111	тър	310	SEI	цец	FIO	ASII	315	цуз	val	ASII	rio	320
168	-	Thr	Ala	Asp	Lvs		Gly	Leu	Tvr	Arg		Asp	Asn	His	Ala	
169				1	325		1		- 1 -	330					335	1
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171				340					345					350		
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179 180	т1-	mh~	T 6.1	c1	405	Dro	C1	mh~	Co~	410 Dro	N.c.s	mh∽	W-1	Dha	415	Con
181	тте	111I.	ьeu		GIU	PI.O	Gly	THE	ser 425	PLO	ASII	1111	vaı	430	HId	ser
182	Agn	Glv	Ť.Đu	420	Dho	Δla	Arg	Thr		ніс	Thr	Ser	Va l		T.eu	Pro
183	เนอเเ	GIY	435	тут	FIIG	Ата	лгу	440	r. HG	1113	1111	261	445	Val	шец	110
184	Asp	Glv		Thr	Phe	Tle	Thr		Glv	Gln	Ara	Ara		Tle	Pro	Phe
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191	DCI	110	DCI	500	пси	БСС	110	110 P	505	**** 9	· u i	1	11011	510	011	0+1
192	Clv	Lou	Cvc		λan	Cvc	Thr	Thr		Uic	Dho	Acn	λlа	Gln	Tlo	Dho
	Gry	Leu	515	Gry	кэр	Cys	1111	520	ASII	1113	FIIC	изр	525	GIII	110	LIIC
193	m l	D		m	T				7 ~~	G 1	7 ~ ~	T		m b m	7	Dwo
194	Thr		ASII	туг	Leu	Tyr		ser	ASP	GTÀ	ASII		Ald	Thr	Arg	PIO
195	_	530		_		_	535	1	_		_	540	~ 3	~ 1	_	- 1
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2.4	O		1 2	,				20	U				20	5		
24	1 Pr	o Se	r Th	r Gl	y Il	e Val	l Se	r As	p Arg	g Th	r Va	l Th	r Va	l Th	r Lv	s His
24.	_	41	U				21	5				2.2	Λ			
24	3 As	p Me	t Ph	е Су	s Pr	o Gly	/ Il	e Se	r Met	As	p Gl	y As	n Gl	y G1:	n Il	e Val
24		5				23(,				23	5				240
24!	o va.	I Th	r GI	y GI	y Ası	n Asp	Ala	a Ly:	s Lys	Th:	r Se	r Le	и Ту:	r Ası	o Se	r Ser
240	9				24:	5				250	ን				25	=
247	/ Se:	r As	p Se	r Tr	p Ile	e Pro	Gly	y Pro	o Asp	Met	t Gli	n Va.	l Ala	a Arc	g Gl	y Tyr
248 249	,			20	U				265)				271	٦.	
250		ıı se:	r se	r Ala	a Thi	r Met	. Sei	c Asp	o Gly	Arg	y Val	l Phe	∃ Thi	r Ile	e Gly	y Gly
251	,		Z / .)				280)				200	₹		
252	sei	29(e Se	r GI	y G1Σ	y Val	Ph∈	∈ Glι	ı Lys	Asr	ı Gl	/ Glu	ı Va]	Туг	Sei	r Pro
253	•	2)(,				295)				300)			
254	305	: sei	г гуз	s Tni	r Trp	Thr	Ser	Leu	ı Pro	Asr	Ala	Lys	val	. Asr	Pro	Met
255	50.	,				310					315					220
256	i	4 1111	AIC	ASE	луя 325	: GIN	GLY	Leu	ı Tyr	Arg	Ser	Asp	Asr.	His	Ala	320 Trp
257		ı Phe	c1,	z Minn			G1			330	- ~				335	5
258			. 01)	340	n nys	n n y s	СТУ	ser	· val	Phe	GIn	Ala	Gly			Thr
259		Met	Asr			Tur	Thr	Cor	345	C 0 10				350	ı	Ala
260			355	,	- 111	1 Y L	1 11T	360	дтй	ser	GIY	Asp			Ser	Ala
261	Gly	Lys			Ser	Asn	Ara	Glv	. Val	λΙο	Dro	7 ~ ~	365		~	Gly
262	_	370	,				375	OLY	vai	ніа	PIO	380		мет	Cys	Gly
263	Asn	Ala	Val	Met	Tyr	Asp	Ala	Va l	Lvs	Glv	Luc	710	Lou	m b so	Dh.	Gly
264	385				-	390			275	GLY	395	TIE	Leu	1111	Pne	
265	Gly	Ser	Pro	Asp	Tyr	Gln	Asp	Ser	Asp	Ala	Thr	Thr	Δen	λla	II i a	400
266					400					410					416	
267	Ile	Thr	Leu	Gly	Glu	Pro	Gly	Thr	Ser	Pro	Asn	Thr	Va1	Pho	Δla	Sor
268				420					425					430		
269	Asn	Gly	Leu	Tyr	Phe	Ala	Arg	Thr	Phe	His	Thr	Ser	Val	Val	Leu	Pro
270			433					440					115			
271	Asp	Gly	Ser	Thr	Phe	Ile	Thr	Gly	Gly	Gln	Arg	Arg	Gly	Ile	Pro	Phe
272		400					455					460				
273 274	465	Asp	Ser	Thr	Pro	Val	Phe	Thr	Pro	Glu	Ile	Tyr	Val	Pro	Glu	Gln
275	103					4/0					475					400
276	кър	1111	Phe	Tyr	Lys	GIn	Asn	Pro	Asn	Ser	Ile	Val	Arg	Ala	Tyr	His
277					400					490					105	
278	DCI	116	ser	500	Leu	reu	Pro	Asp	Gly	Arg	Val	Phe	Asn	Gly	Gly	Gly
279	Glv	T.eu	Ser		λan	Cva	mh m	ml	505		1			510		
280		Lea	515	GLY	кър	Cys	1111	THE	Asn	His	Phe	Asp		Gln	Ile	Phe
281	Thr	Pro		Tur	Lan	тик	λαη	520 San	7	a ı	_	_	525			
282	·- -	530		-1-	_cu	- A T	535	ser.	Asn	сτλ	ASN	Leu	Ala	Thr	Arg	Pro
283	Lys		Thr	Ara	Thr			Gln	Ser	U a l	T ***	540	a l	a 1	_	
284	545			3		550	- 114	0111	DET	val	ьуs 555	۷dl	σтλ	GTÀ	Arg	
						0					773					560

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

VERIFICATION SUMMARY

PATENT APPLICATION: US/09/722,602 TIME: 16:46:01

DATE: 07/02/2001

Input Set : A:\Seqlist.txt

Output Set: N:\CRF3\07022001\I722602.raw

L:1240 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:28 $\,$